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COMMENTARY

Assault on Science

WHAT IS GETTING IN THE WAY OF USING SCIENCE TO PROTECT HEALTH AND THE ENVIRONMENT?

Science plays an important role in ensuring that the corporate profit motive does not force harmful impacts on human health, the environment, social conditions, and the economy. Environmental laws require the application of science, based on protocol subject to public oversight. These laws establish standards concerning acceptable environmental and health impacts regarding whether, when, where, and how toxic chemicals are used, their discharge into rivers and streams, emission into the air, disposal, and the remediation of inadvertent poisoning or contamination. Scientists, with a professional ethic for carrying out the scientific method,¹ are critical to bringing facts to discussions that can be highly politicized or involve those who have a vested economic interest in a particular policy outcome or standard. In the current political climate, scientists are being undermined, attacked, and removed from their historical role of informing and implementing environmental and public health law.

A HISTORY OF ATTEMPTS TO SILENCE SCIENTISTS

Of course, the attack on scientists and science is not a new phenomenon. The question is whether it is more pervasive

and far-reaching, and irreversible, given the current state of environmental degradation and rates of environmentally induced diseases.

We can trace modern victims of attempts by corporations to silence scientific critics back to Rachel Carson in the 1960's, although the attack on Italian astronomer and physicist Galileo Gallilei by societal forces is well-known. Ms. Carson, who dared to speak out about the dangers of pesticides, was subjected to many attempts to silence her—chemical companies attempted to prevent the publication of *Silent Spring*. They characterized her as extremist and hysterical, and corporate sponsors withdrew their support for an hour-long *CBS Reports* show that featured her work.

More recently, after the chemical company Syngenta hired Harvard and Berkeley educated biologist Tyrone Hayes, PhD to study the effects of atrazine, it refused to let him publish his finding that its top-selling herbicide, atrazine, feminizes male frogs. When his work appeared in the prestigious *Proceedings of the National Academy of Sciences*, Syngenta attacked the study and Dr. Hayes with a multi-million dollar campaign to

¹ Webster's defines scientific method as "principles and procedures for the systematic pursuit of knowledge involving the recognition and formulation of a problem, the collection of data through observation and experiment, and the formulation and testing of hypotheses."

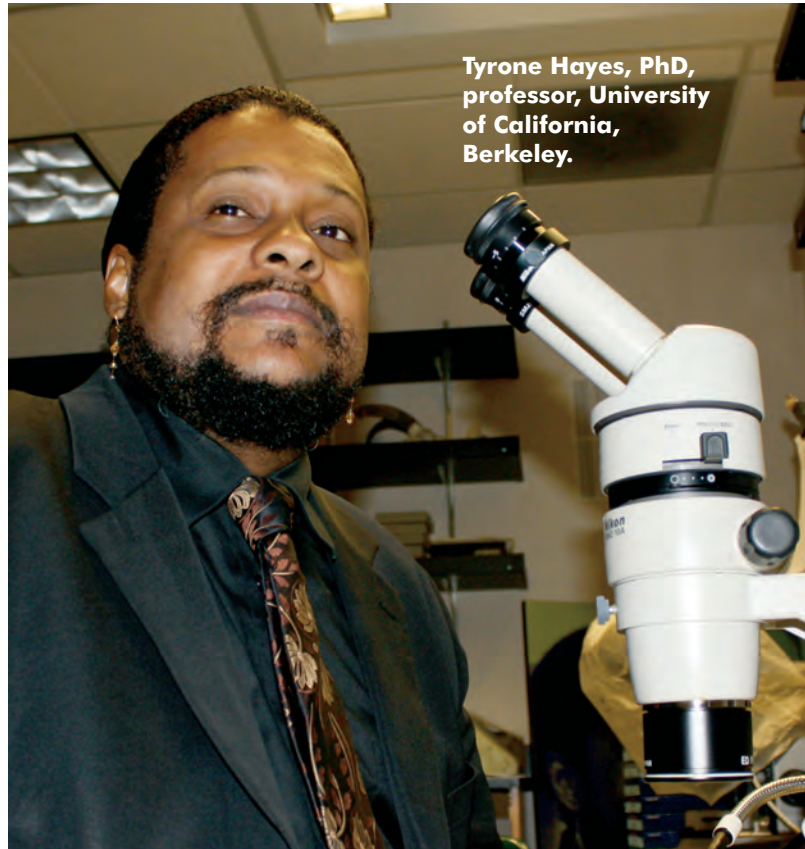
discredit him and atrazine critics. The details of this orchestrated Syngenta campaign were uncovered in documents obtained in discovery in a lawsuit by water treatment plants—forced to clean up atrazine-contaminated water—against the company and fully described in a 2014 *New Yorker* article. Before uncovering the Syngenta campaign, the University of California, Berkeley, where Dr. Hayes is a professor, was pressured to remove funding for his laboratory and the continuation of his critical work. Recognizing the need for a mechanism to raise substantial funds to support independent scientific research that informs sound public policy to protect health and the environment, Beyond Pesticides established The Fund for Independent Science. The fund supports Dr. Hayes' work to protect life from harmful chemicals.

If researchers in universities are at risk, consider the position of scientists in government agencies, where their work may feed directly into regulatory policies. In 2009, the Obama administration issued scientific integrity policies for federal agencies in coordination with the White House Office of Science and Technology Policy through a presidential memorandum to the heads of executive departments and agencies. It stated that:

Political officials should not suppress or alter scientific or technological findings and conclusions. If scientific and technological information is developed and used by the Federal Government, it should ordinarily be made available to the public. To the extent permitted by law, there should be transparency in the preparation, identification, and use of scientific and technological information in policymaking. The selection of scientists and technology professionals for positions in the executive branch should be based on their scientific and technological knowledge, credentials, experience, and integrity.

Despite these policies, Jonathan Lundgren, PhD was suspended by the U.S. Department of Agriculture (USDA) after he published research showing the adverse effects of neonicotinoid insecticides on monarch butterflies and bees. USDA's five-member Scientific Integrity Review Panel, which was convened to review Dr. Lundgren's complaint of USDA's action under USDA's scientific integrity policy, found, "USDA's Scientific Integrity Policy explicitly authorizes it to block publication of research containing 'statements that could be construed as being judgments of or recommendations on USDA or any other federal government policy.'" Dr. Lundgren, along with many other embattled government scientists, was represented by Public Employees for Environmental Responsibility (PEER), a nonprofit organization that works "with and on behalf of scientists to empower them in confronting their own agencies and the political and commercial forces behind scientific perversion."

Aaron Blair, PhD is a National Cancer Institute researcher (emeritus), author of more than 450 publications on occupa-



Tyrone Hayes, PhD,
professor, University
of California,
Berkeley.

tional and environmental causes of cancer, and the overall chair of the International Agency for Research on Cancer's (IARC) evaluation panel that found glyphosate (Roundup) to be "probably carcinogenic to humans." When the 2015 IARC report on glyphosate was released, Monsanto, the manufacturer of glyphosate, was ready with a campaign to attack Dr. Blair and IARC.

POLITICAL ATTACKS ON SCIENCE IN THE TRUMP ADMINISTRATION

The Trump administration has declared open season on attacks on scientists. A recent example is the move by Republicans on the House Committee on Science, Space, and Technology to "conduct oversight" of Linda Birnbaum, PhD, the director of the National Institute of Environmental Health Sciences (NIEHS), an institute of the National Institutes of Health that operates in the U.S. Department of Health and Human Services (DHHS). The mission of NIEHS is "to discover how the environment affects people in order to promote healthier lives." U.S. Representatives Lamar Smith (R-TX) and Andy Biggs (R-AZ) wrote to the DHHS Inspector General and the Acting Secretary in January to say they were taking this step in response to an editorial Dr. Birnbaum co-authored in a scientific journal.

That editorial, published by *PLOS (Public Library of Science) Biology* in December 2017, addressed problems in the regulation of toxic chemicals in the U.S. In it, Dr. Birnbaum noted

that, “Though there are more than 85,000 chemicals approved for use in commerce . . . ‘U.S. policy has not accounted for evidence that chemicals in widespread use can cause cancer and other chronic diseases, damage reproductive systems, and harm developing brains at low levels of exposure once believed to be harmless.’” Additionally, she posited a need for more research on the risks presented by chemicals in the materials stream, and noted that “closing the gap between evidence and policy will require that engaged citizens—both scientists and non-scientists—work to ensure that our government officials pass health-protective policies based on the best available scientific evidence.”

Reps. Smith and Biggs charge that this last statement may be a violation of the *Anti-Lobbying Act*, which bars federal employees from lobbying Congress on specific issues, and have called on the Inspector General to analyze their concerns with an eye to launching “a full scale review of the situation.” They asked for a determination by the end of January.

The *Anti-Lobbying Act* says that no Congressional funds may be used to “pay for any printed or written matter . . . intended or designed to influence in any manner a Member of Congress, a jurisdiction, or an official of any government, to favor, adopt, or oppose . . . any legislation . . . before or after the intro-

duction of any bill . . . [or] policy.” In 1989, the Department of Justice (DOJ) offered further guidance, saying that the Act applies to grassroots lobbying, meaning all “communications by executive officials directed to members of the public at large, or particular segments of the general public, intended to persuade them in turn to communicate with their elected representatives on some issue of concern to the executive.”

It is worth noting that Dr. Birnbaum was not paid to write the editorial, nor does it advocate for any particular policy, legislation, or action—other than engaged citizenship. Also relevant is the fact that both Representatives received money from Koch Industries, Exxon Mobil, and other companies that have a financial interest in limiting research on the environmental effects of chemicals. Andrew Rosenberg, PhD, the director of the Center for Science and Democracy at the Union of Concerned Scientists (UCS), said, “I don’t see how in any sense it is lobbying. . . . Science itself is not lobbying. It is reporting on evidence.”

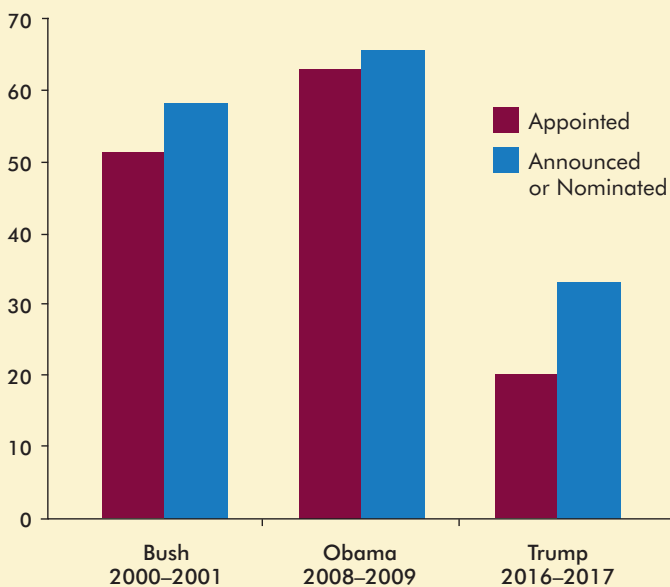
Members of the House Committee on Science had previously targeted Dr. Birnbaum for calling attention to environmental science that pointed to a need for increased regulation of chemicals. In 2013, then-chairs Reps. Larry Bucshon and Paul Broun criticized a paper in which Dr. Birnbaum described the harms of various endocrine disrupting chemicals, titled, “When environmental chemicals act like uncontrolled medicine.” Industry and chemical manufacturing interests have perpetually challenged the science behind endocrine disruption linked to chemicals in products.

SIDELINING SCIENCE

UCS’s Center for Science and Democracy recently released a report, *Abandoning Science Advice: One Year in, the Trump Administration Is Sidelining Science Advisory Committees*, that analyzes membership and meeting data of 73 science advisory committees across 24 departments, agencies, and sub-agencies, and interviews more than 30 current and former advisory board members. It concludes that the Trump “administration systematically sidelines science to an unprecedented extent, resulting in the neglect of valuable input from the nation’s established network of scientific advisory committees.” UCS finds: in 2017, federal science advisory committees met less often than in any year since the government started tracking in 1997; advisory committee membership decreased 14 percent from 2016 (a far larger dip than in the first year of the prior two administrations); and, at the Department of Energy, Department of Commerce, and EPA, fewer experts serve on science advisory committees than at any time since 1997.

Meanwhile, scientists and others charged with protecting the health of the public and the environment at EPA are being encouraged to exit the agency, as EPA Administrator Scott Pruitt advances his goal of trimming agency programs and staff by half. As Mr. Pruitt advances his goal through

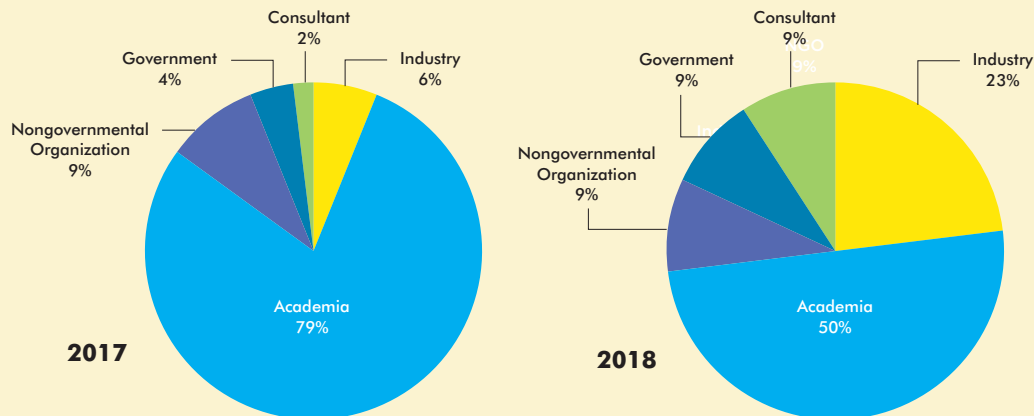
Presidential First-Year Appointments to Science Positions



Not only has President Trump failed to nominate a presidential science advisor, but he also has filled only 20 of 83 top government science positions, far fewer than his two predecessors in their first year as president.

SOURCES: UNION OF CONCERNED SCIENTISTS 2018 (UCSUSA.ORG); PARTNERSHIP FOR PUBLIC SERVICE; WASHINGTON POST 2017; NAS 2008.

The Changing Makeup of the EPA Science Advisory Board



EPA Administrator Pruitt's attacks on scientific and evidence-based guidance have distorted the composition of the agency's Science Advisory Board. By forcing academic scientists with EPA grants off the committee, he decreased the 2018 representation of academic advisors 40 percent compared with 2017. Over the same period, industry representation has tripled.

SOURCES: UNION OF CONCERNED SCIENTISTS 2018 (UCSUSA.ORG); EPA 2017C; GSA 2017.

encouraging retirement of senior scientists, the agency loses expertise, institutional knowledge, and sometimes entire areas of work. Younger scientists are discouraged from going into public service by the hostile environment. As the Trump administration focuses staff reductions on areas to which it is ideologically opposed, the agencies lose the institutional structures to deal with issues like pollution prevention and climate change.

Aides to Mr. Pruitt confirmed to the *Washington Examiner* that by the end of President Trump's first term, the agency's staff will be cut by nearly half. Administrator Pruitt told the *Washington Examiner* he was "proud" of his efforts to dismantle, some say cripple, the very agency he leads, which is responsible for enforcing the *Safe Drinking Water Act*, the *Clean Air Act*, the pesticide registration program under the *Federal Insecticide, Fungicide and Rodenticide Act* (FIFRA), and the Superfund toxic waste cleanup program, farmworker protection, and key provisions of the *Endangered Species Act*, among others. By early 2021, Mr. Pruitt and his team are aiming to reduce the staff of what was nearly 15,000 to below 8,000. Among the people who are being encouraged to "retire" are more than 200 scientists and nearly 100 environmental protection specialists.

SCIENCE AND THE MEDIA FIGHT BACK

In view of these attacks, it is not surprising that scientists and the independent media have responded. The latest is the launch of the *Silencing Science Tracker*, by the Sabin Center for Climate Change Law at Columbia Law School (Columbia University) and the Climate Science Legal Defense Fund. The function of the tracker is to monitor and record reported attempts by government to "silence science"—by prohibiting or restricting scientific research, discussion, education, or the publication or use of science information.

The tracker identifies six categories of such silencing: government censorship, self-censorship, budget cuts, personnel changes, research hindrance, and bias and misrepresentation. Reports that end up in the tracker come primarily from national news media reporting. The website also provides a

resources page of other aligned initiatives, including resources for whistleblowers. Beginning with the 2016 Presidential election, the tracker has monitored silencing attempts only by the federal government, but plans to add information about analogous actions at the state level, as capacity permits.

Other initiatives have made available thousands of pages of scientific reports, legal proceedings, and other information—including emails between regulators and the regulated industry—in freely accessible databases. These include the Monsanto Papers (<https://usrtk.org/pesticides/mdl-monsanto-glyphosate-cancer-case-key-documents-analysis>), and Poison Papers (<https://www.poisonpapers.org/the-poison-papers>). The Poison Papers are contained in DocumentCloud (<https://www.documentcloud.org>). Searches of the more than 27 million pages in DocumentCloud are facilitated by a search engine (<https://www.documentcloud.org/public/search>).

AGENCIES NEED GOOD SCIENCE

Regardless of efforts to make research and government agency actions more transparent, agencies need scientists who understand the science and can apply it in a regulatory context. The politically based attacks and deliberate, overly aggressive staff reductions at EPA and other agencies encourage actions that may be arbitrary and capricious because they lack the required scientific basis. Congress must be encouraged to support full funding for science in federal agencies and push back to require the use of science in environmental and public health regulatory decisions.

WHAT YOU CAN DO

Contact your U.S. Senators and U.S. Representative and tell them that you are concerned about the lack of science informing regulatory decisions intended to carry out federal environmental and public health law. Ask them to initiate or support efforts that specify requirements for science-based decision making and staffing levels to carry out federal laws intended to protect our health and the environment.

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